1. Describe the practice proposed for recognition, and list its objectives. Detail how the practice is innovative, how it promotes high student achievement and how it can be replicated.

In fifth grade, the students explore invertebrates and learn how living organisms interact. They recognize that all living things exhibit characteristics that aid in their survival. By means of a unique program entitled "I Ate an Invertebrate," students are exposed to a unit central to science, yet truly interdisciplinary in scope. The program also encourages the students to continuously practice organizational skills and many social skills in varied settings.

Many subject areas are connected throughout this unit: math, language arts, and social studies are woven throughout the unit, while students learn to compute information, create examples of specific invertebrates, and take part in activities and projects. They keep an organized binder, including a table of contents. The pages in their binders are numbered appropriately, following their table of contents. Note-taking, including outlining, is introduced in this unit, and the students are encouraged to eventually outline on their own. Along with using many study skills, the students read material on six invertebrate groups. As each invertebrate group is studied, the students complete projects, experiments, and activities. A class trip to the seashore reinforces the study of invertebrates. The students gather shells and complete a classifying project back at school. As a culminatimg activity as well as a celebration of their learning, the students plan a menu, incorporating invertebrates they have studied into their meals. Parent volunteers help the students prepare the food and encourage them to taste each item. The children invite parents, other teachers, and administrators to their luncheon. Cooperative groups of children design and decorate their classrooms as restaurants, creating enticing places where others may choose to dine. The children are constantly reminded of safety precautions, cleanliness, and good manners.

Along with using a text to gather information about invertebrates, the students use other resources for content knowledge, including: magazine articles, research on the Internet, and guest speakers who are experts in the field. These methods allow the students to explore other avenues to gather information about invertebrates, as well as increasing study skills in an innovative way. Many hands-on activities are woven through the invertebrate unit. The children truly enjoy making "jellyfish oceans," and watching their adopted planarians regenerate. These are but a few of the many exciting projects created during this unit.

While the students are digesting information on the six invertebrate groups, they are involved in numerous activities that generate a high level of enthusiasm. Each project allows students to infiltrate the systems, eating habits, body parts, and characteristics of specific invertebrates. The students are constantly reminded of how the activities connect to the study of invertebrates. Positive assessment results reflect the students' greater understanding of the concepts learned through a hands-on approach.

This unit can be successfully incorporated into any science curriculum at various grade levels. It is considered an interdisciplinary unit because of the involvement of other academic areas. Any school district can easily recreate this innovative unit by following the guidelines presented.

* Students will:

classify invertebrates;
utilize microscopes;
capture live specimens;
collect shells;
read information in a textbook;
create and decorate a restaurant;
follow a recipe;
read a menu;
eat in a "restaurant setting";
organize a binder complete with a table of contents;
investigate characteristics of invertebrates;
learn about survival skills of invertebrates;
incorporate invertebrate knowledge in a handmade placemat;
write and send handwritten invitations to school personnel and parents;
practice making a reservation for dinner at a restaurant;
classify foods following a food pyramid;
demonstrate cleanliness before and during food preparation;
enlarge a recipe to serve more people;
taste (possibly for the first time) a seafood invertebrate;
develop note-taking skills;
develop outlining skills;
maintain a journal;
visit an environmental ocean site;
write about their experiences;
classify foods following a food pyramid;
prepare a full meal;
use cooking tools properly;
set a table.

2. Describe the educational needs of students that the practice addresses and how they were identified. List the Core Curriculum Content and/or Workplace Readiness Standards addressed by the practice and describe how the practice addresses the standard(s).

The students in this group are fifth graders of all ability levels in heterogeneous science classes. Gifted students, average students, basic skills students, and special education students all worked together on this project.

Workplace Readiness Standards:
Standard 3 - All students will use critical thinking, decision-making, and problem-solving skills:
This unit requires the students to organize a web of information about sponges and create a jellyfish model which will rise and sink in an "ocean." Students design and decorate a classroom as a restaurant that others will choose to eat in. They coordinate activities with the teachers of cycle classes such as art, cooking, and guidance, in order to obtain supplies, and cooking and clean-up space. The culminating activities for this unit involve students in writing about and verbalizing their experiences.
Standard 4 - All students will demonstrate self-management skills:
All students keep an organized binder of all information sheets and written data. Groups of students prepare the items on the menu and all diners taste their accomplishments. Students have the opportunity to tell their peers, various school personnel, and newspaper and radio reporters about their experiences and tasks. Students may choose politely to not try some of the items on the menu. Students learn to use time efficiently and effectively so as to have the meal ready for a normal lunch period.
Standard 5 - All students will apply safety principles:
On a field trip to the shore, students follow leaders' instructions about proper methods of using seining nets and waders to safely catch and examine live specimens. In a class activity, they safely use sharp knives and microscopes to study planarian regeneration. Students review use of all kitchen tools and equipment before cooking, and learn proper hand-washing before using any cooking tools. Students wait their turn to be served in a buffet line and then to be seated in a "restaurant."

Science Core Curriculum Standards:
5.4 All students will develop an understanding of technology as an application of scientific principles;
5.5 All students will integrate mathematics as a tool for problem-solving in science, and as a means of expressing and/or modeling scientific theories;
5.6 All students will gain an understanding of the structure, characteristics, and basic needs of organisms;
5.7 All students will investigate the diversity of life.

Students address the above standards by designing a "jellyfish ocean" using the scientific principle of buoyancy to show how jellyfish move in the ocean. They estimate amounts of food needed for serving large quantities of people and enlarge recipes needed during the preparation process. Measurements using kitchen tools are made while cooking. Counting. ordering, identifying, and using charts are skills used with shell collections obtained from a class trip to the shore. Students classify six invertebrate groups, from simple sponges to complex arthropods. They create and describe an appropriate habitat for an imaginary insect that would fit into the criteria for classification. They picture and describe how various invertebrates interact with each other and with humans.

Language Arts & Mathematics Core Curriculum Standards:
3.4 All students will read, listen to, view, and respond to a diversity of materials and texts with comprehension and critical analysis;
3.5 All students will view, understand, and use non-textual visual information and representations for critical comparison, analysis, and evaluation;
4.1 All students will develop the ability to pose and solve mathematical problems in mathematics, other disciplines, and everyday experiences;
4.3 All students will connect mathematics to other learning by understanding the interrelationships of mathematical ideas and the roles that mathematics and mathematical modeling play in other disciplines and in life.

Students address the language arts standards by comparing and contrasting six invertebrate groups and making charts showing the characteristics of these groups. They gather information from the text, other printed material, and the computer resources to make web projects about sponges. Using a computer, they create three styles of poems for the three groups of mollusks. By searching in field guides, the students identify, label, and chart the sea shells they find on their field trip to the shore. Students address the mathematics standards by categorizing arthropods by numbers of legs and body parts. During preparation of food, students revise all recipes to feed the appropriate number of people attending the luncheon. They also use appropriate kitchen measuring tools to add the necessary ingredients for the recipes.

3. Document the assessment measures used to determine the extent to which the objectives of the practice have been met.

Literature/Language Arts assessments:
*Students created poetry, webbing, and stories involving sponge invertebrates. They also created original stories through cartoon illustrations, did echinoderm crossword puzzles, and participated in various experiments while detailing procedures and results using the scientific method. Journal entries and diagrams detailing various parts of invertebrates were used, as well as timelines.

Math assessment:
* Students categorized the number of legs and body parts of invertebrates, located and drew lines of symmetry in various invertebrates, measured and charted sizes of planarians as they regenerated, and revised recipes to feed appropriate numbers of people attending the luncheon.

Students developed a binder on invertebrates which included: using a table of contents, organizing information, numbering pages, and completing notes. The binder was also evaluated for overall neatness.

As a culminating activity, students: presented binder for assessment; planned and carried out an "invertebrate luncheon" for peers, teachers, administrators, and parents.

Students were assessed throughout the unit by means of quizzes, tests, poems, projects, and charts. They followed parent, leader, and teacher directions during the luncheon, field trip, and class work. Their tasty luncheon was thoroughly enjoyed by all guests. During this culminating celebration, some students tasted clams, shrimp, or scallops for the very first time. They enjoyed describing their experiences to newspaper and radio reporters who were invited, and enjoyed reading and listening to the follow-up articles and programs. As one student said, scrunching up his face in an unsure grimace as the clam went down, "I ate it, OK?".